WHAT IS CLAIMED IS:

1. A fluid machinery comprising a driving mechanism and a helical mechanism connected to the driving mechanism to be driven thereby through a crank shaft connected to the driving mechanism,

said helical mechanism comprising:

a cylinder having an inner space as operation section;

a roller disposed in the inner space of the cylinder so as to be rotated by the driving mechanism through the crank shaft in an eccentric manner, said roller being formed with a plurality of helical grooves on an outer peripheral surface thereof and at least one seal ring groove formed on the outer peripheral surface of the roller at a portion between respective helical grooves;

a plurality of helical blades fitted to the helical grooves so as to be disposed between an inner peripheral surface of the cylinder and the outer peripheral surface of the roller;

at least one seal ring fitted to the seal ring groove so as to tightly seal a space between the inner peripheral surface of the cylinder and the outer peripheral surface of the roller so as to define the inner space of the cylinder into a plurality of operation sections; and

a plurality of suction ports formed to the respective operation sections and a plurality of drain ports formed to the respective operation sections so that the corresponding

suction port and drain port are communicated with each other.

2. A fluid machinery according to claim 1, wherein said seal ring has a cutout and end portions of the cutout are provided with staged portions which are tightly mated together when both end portions are assembled as a seal ring.

3. A fluid machinery according to claim 1, wherein said seal ring is formed of a resin material and, preferably, of a fluororesin.

4. A fluid machinery according to claim 1, wherein said helical grooves of the respective operation sections have same winding direction.

5. A fluid machinery according to claim 1, wherein said helical grooves of the respective operation sections have winding directions different from each other.

6. A fluid machinery according to claim 1, wherein said helical grooves of the respective operation sections have same winding pitch.

7. A fluid machinery according to claim 1, wherein said

helical grooves of the respective operation sections have winding pitches different from each other.

8. A fluid machinery according to claim 1, wherein the driving mechanism and the helical mechanism are disposed in an outer cylindrical seal casing.

9. A fluid machinery according to claim 8, wherein said seal casing is replaced with a cylindrical cover having opened end portions.

10. A fluid machinery according to claim 1, which is composed of a vertical type helical compressor.